REMARKS

In the Office Action, the Examiner has rejected Claims 1-6, 9-12, 17-19, 23-30, 33, 34, 37-40, 42, 43, 45-48 and 50 under 35 U.S.C. 102(b) as being anticipated by King, et al. (U.S. 5,812,572). The Examiner has also objected to Claims 7, 8, 13-16, 21-22, 31, 32, 35, 36, 41, 44 and 49 as depending upon a rejected base claim and are otherwise allowable if rewritten in independent form.

The Examiner asserts that King teaches the subject matter of Claims 1-6, 9-12, 17-19, 23-30, 33, 34, 37-40, 42, 43, 45-48 and 50, directing Applicant to various reference designators of King shown in Figure 1. Applicant respectfully disagrees.

Claim 1 (dependent Claims 2-8, similarly independent Claims 9 and 10 along with dependent Claim 11, and similarly independent Claim 28), recites "an amplifier having an output coupled to said laser diode for superimposing an AC signal on said DC operating point, wherein said amplifier has a control input for controlling a maximum output swing of said amplifier." King teaches superimposing an AC signal on a laser diode using a modulator transistor pair 20 "that causes a current (the modulation current) to be either pulled from laser diode 36 (case of data=1)

or from the system power supply (case of data=0)." The above-quoted functional description, the lack of a linear gain region of modulator transistor pair 20, and the fact that the modulating signal is connected through a digital input buffer 14, reveals that modulator transistor pair 20 is operating as a digital current switch and not as an amplifier. Therefore, the laser control circuit disclosed in King does not include an amplifier as recited in the above-listed Claims.

Modulator transistor pair 20 can form only a digitally switched current path and not an amplifier, as the connection of both collectors of the constituent transistors to low impedance points (ground and the output of input buffer 14) assures that the current level through the modulator transistor pair 20 will rise rapidly as the voltage at the base of the "on" transistor exceeds V_{be}. Thus, modulator transistor pair is a switch and not an amplifier.

A digitally switched current path is not the same as or equivalent to the amplifier recited in the subject Claims. With respect to Claim 9, the means (modulator transistor pair 20) disclosed by King for controlling the amplitude of the switched modulation current does not perform the modulation function in the same manner as the amplifier of the present invention as

stated above and therefore King does not teach the means recited in Claim 9.

With respect to amended Claim 10, the method of King does not control the maximum swing of a modulating signal as recited in the Claim or pass the modulating signal through an amplifier. Rather, the method implicit in King controls the amplitude of modulating signal itself and does not control the maximum swing via controlling the maximum current swing of an amplifier.

Further, the amplifier 54 referred to by the Examiner does not perform the function of superimposing an AC signal on the DC operating point of the laser diode at all, nor does amplifier 54 have a control input for controlling a maximum output swing of the amplifier. Rather, amplifier 54 is an error amplifier that adjusts the *bias current* of the laser diode and not the modulation current. Therefore, for the above-stated reasons Claims 1-11 and Claim 28 should be allowed.

Claim 12 (and similarly independent Claim 29 and dependent claims 30-36) recites: "a control circuit for coupling said output of said amplifier to said laser diode, said circuit having an adjustable response whereby a transition time of said AC signal may be adjusted." The Examiner has cited King reference

designators 42, 44, 46, 47, 52 and 56 as providing such control circuit. Applicant respectfully disagrees. The reference designators mentioned comprise a feedback circuit for controlling the bias (DC operating) point of laser diode 36 and not the transition time of the AC (modulating) signal. King in fact, does not provide compensation for transition time at all, and therefore does not include the response control circuit of the present invention and as recited in the Claims. Therefore, for the above-stated reasons Claim 12 should be allowed. Dependent Claims 13-22 should therefore also be allowed. Allowability of Claims 13-16 is indicated on the cover sheet and in the section denoted "Allowable Subject Matter", but rejection of Claim 13 was argued in the Examiner's Detailed Action. Similarly, independent Claims 23 and 24, along with dependent claims 25-27 and independent Claim 29 along with dependent claims 30-36 should be allowed because King does not teach adjustment of the modulation signal transition time (response time).

The Examiner rejected Claim 37 (and dependent Claims 38-40 and similarly independent Claims 45, 46 and dependent Claims 47-48 and 50) based on the rejection argued above for Claim 1. However, Claims 37-40 do not include the controlled amplifier circuit recited in Claim 1 and the related Claims. Claim 37 includes an improved bias circuit including: "a voltage reference coupled to

said power supply rail for biasing a monitor diode optically coupled to said laser diode, such that variations in said power supply rail are not reflected in the bias imposed on said monitor diode." King does not teach such voltage reference. In King, monitor diode 40 is connected directly to power supply rail V_{EE} and is therefore prone to bias errors due to variations in the power supply rail V_{EE} (Applicant respectfully points out that V_{EE} is at least common to modulator 20 via current source 22 and in any case, a separate voltage reference is not taught). Therefore, for the above-stated reasons Claims 37-50 should be allowed.

CONCLUSION

In conclusion, Applicant respectfully submits that this Amendment, in view of the Remarks offered in conjunction therewith, is fully responsive to all aspects of the objections and rejections tendered by the Examiner in the Office Action. Applicant respectfully submits that he has demonstrated that the above-identified Patent Application, including Claims 1-50, is in condition for allowance. Such action is earnestly solicited.

No fee is believed to be required in connection with this Amendment. However, if there are any fees incurred by this Amendment Letter, please deduct them from our deposit account No. 23-0830.

Respectfully submitted,

Andrew M. Harris /gm

Andrew M. Harris
Reg. No. 42,638
(706) 782-9683

Weiss, Moy & Harris, P.C.
4204 North Brown Ave.
Scottsdale, AZ 85251

REDACTED COPY OF AMENDED CLAIMS

10. (Amended) A method for operating a laser diode, comprising:

retrieving values stored in a programmable memory;

biasing said laser diode at a DC operating point;

passing an input modulating signal through an amplifier having a control input for setting a maximum swing of an output modulating signal;

modulating an intensity of said laser diode with said output [a] modulating signal; and

controlling a maximum swing of said output modulating signal, by setting said control input in conformity with said values.

29. (Amended) An integrated circuit for controlling a laser diode, wherein said integrated circuit comprises:

a bias control circuit for controlling a DC operating point of said laser diode;

a response control circuit for controlling the transition time of an AC modulating signal coupled to said laser diode; and

a programmable memory for supplying programmed values to said bias control circuit and said response [gain] control circuit whereby said transition time and said DC operating point are set in conformity with said programmed values.

30. (Amended) The integrated circuit of Claim 29, further comprising a swing control circuit for controlling a maximum swing of said AC modulating signal, and wherein said programmable memory is further used for supplying programmed values to said swing [gain] control circuit whereby said maximum swing of said modulating signal and said DC operating point are set in conformity with said programmed values.

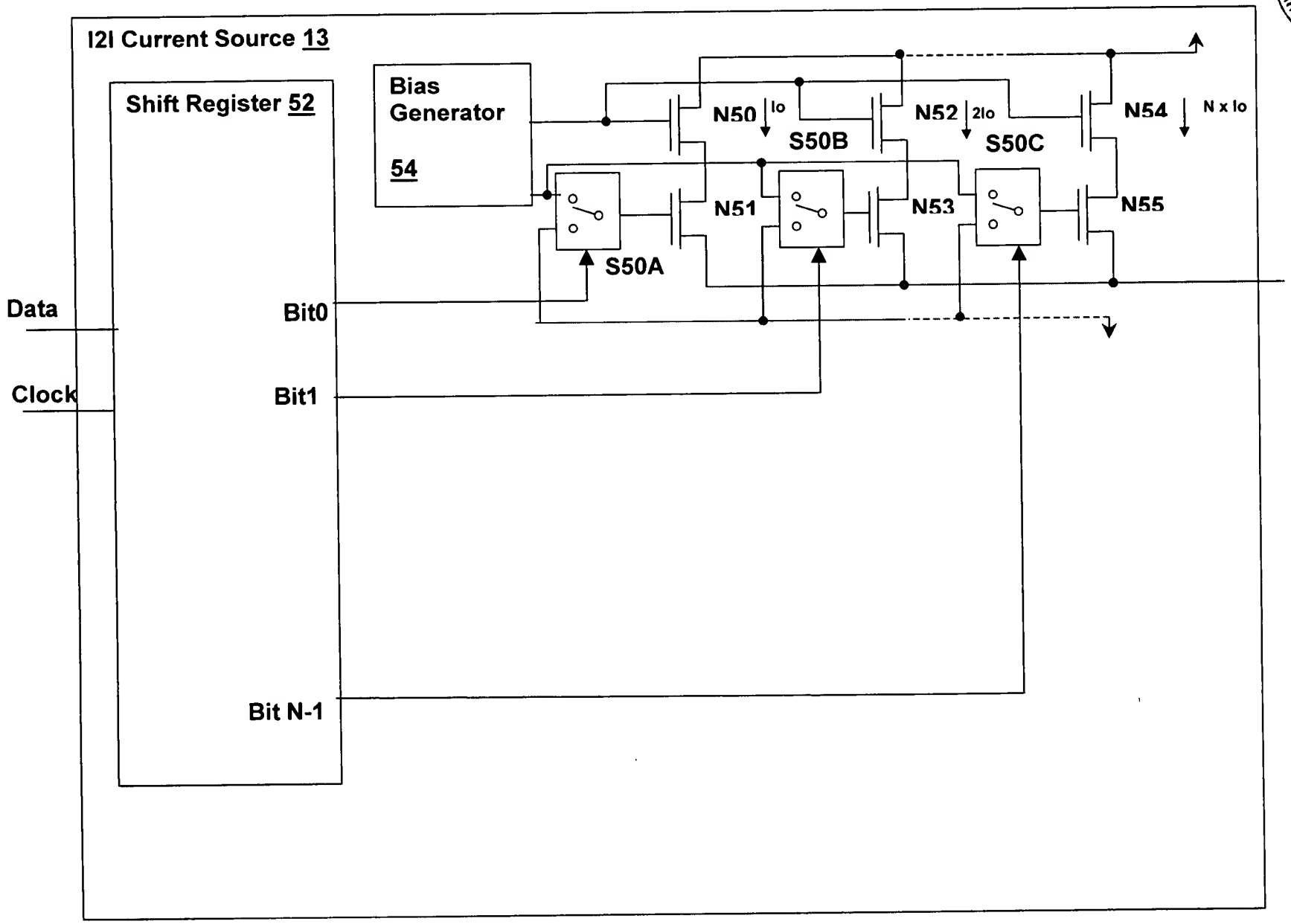

Fig. 6 (Proposed Amendment)